

PROCEEDINGS
OF
THE ROYAL SOCIETY.

1842.

No. 53.

March 17, 1842.

SIR JOHN WILLIAM LUBBOCK, Bart., V.P. and Treas.,
in the Chair.

The reading of a paper, entitled "Contributions to the Chemical History of the Compounds of Palladium and Platinum." By Robert Kane, M.D., M.R.I.A., communicated by Francis Baily, Esq., V.P.R.S., was resumed and concluded.

The author states it to be his object, in this and in some subsequent papers, to examine specially the composition and properties of the compounds of palladium, platinum, and gold; and to ascertain how far they agree, and in what they differ, as to the laws of combination to which these compounds are subjected. He commences with the investigation of the compounds of palladium, employing for that purpose a portion of that metal with which he was furnished by the Royal Society out of the quantity bequeathed to the Society by the late Dr. Wollaston. He describes the mode of obtaining the protoxide of palladium, and enters into the analysis of the hydrated oxide, the black suboxide, and the true basic carbonate of that metal; detailing their properties and the formulæ which express their mode of composition. The chlorides of palladium form the next subject of inquiry; and the author concludes from his experiments that the loss of chlorine which the protochloride undergoes, when kept for some time in a state of fusion at a red heat, is perfectly definite; and also that the loss represents one half of the chlorine which the salt contains. But in the double salts formed by the protochloride of palladium with the chlorides of the alkaline metals, he finds that the similarity of constitution usually occurring between the compounds of ammonium and potassium is violated. From his analysis of the oxychloride of palladium the author concludes that it is quite analogous to the ordinary oxychloride of copper. He then examines a variety of products derived from the action of a solution of caustic potash on solutions of ammonia-chlorides of potassium. Their properties he finds to indicate analogies between palladium and other metals, whose laws of combination are better known. The sulphate, the ammonia-sulphates, the nitrates, and the ammonia-ni-

trates of palladium, and lastly, the double oxalate of palladium and ammonium, are, in like manner, subjected to examination in a detailed series of experiments.

The second section of the paper relates to the compounds of platinum, and comprehends researches on the composition of the protochloride of platinum; on the action of ammonia on biniodide of platinum; and on the action of ammonia on the perchloride of platinum; in which the properties of these substances are detailed and the formulæ expressing their composition deduced.

There was also read, "Magnetic Observations made at Prague for September 1841." By C. Kreil. Communicated by S. Hunter Christie, Esq., M.A., Sec. R.S.

Pursuant to the Notice given from the Chair at the last meeting, a ballot was taken on the question proposed to the Society by the Council, that Mr. William John Banks, F.R.S., be ejected from the Society: which was decided in the affirmative, and his name was accordingly erased from the Charter-book by the Vice-President in the Chair.

The Society then adjourned over the Easter Recess, to meet again on the 7th of April next.

April 7, 1842.

WILLIAM THOMAS BRANDE, Esq., V.P. in the Chair.

The following papers were read, viz.—

Meteorological Observations, taken in conformity with the Report drawn up by the Committee of Physics, including Meteorology, for the guidance of the Antarctic Expedition, as also for the fixed Magnetic Observatories, transmitted to the Society by the Lords Commissioners of the Admiralty and the Master-General of the Ordnance, and communicated by the Council, were read; viz.—

1. "Meteorological Observations taken on board H.M. Ship Erebus, for August and September 1841." By Capt. James Clark Ross, R.N., F.R.S., Commander of the Expedition. (*Forms 1 and 2.*)

2. "Meteorological Observations taken by the Niger Expedition, for May, June and July 1841."

3. "Meteorological Observations taken at the Magnetic Observatory, Ross-Bank, Van Diemen's Land, for November and December 1840, and January, February and March 1841." (*Forms 1 and 2.*)

4. "Meteorological Observations taken at the Magnetic Observatory, Cape of Good Hope, for October and November 1841." By F. Eardley Wilmot, Esq., Lieut. in the Royal Artillery. (*Forms 1 and 2.*)

5. "Meteorological Observations taken at the Magnetic Observatory, Toronto, for January, February, March, April and May 1841."